# 2020 Wyoming Grizzly Bear Job Completion Report

**Wyoming Game and Fish Department**
**Large Carnivore Section**
**October - 2021**

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## INTRODUCTION

This completion report summarizes grizzly bear work completed by the Wyoming Game and Fish Department's (Department) Large Carnivore Section (LCS) and regional personnel during 2020. In the past, this information was included in multiple reports that were not readily available to agency personnel, the legislature, or the public. This report allows the Department to present information pertaining to grizzly bears in Wyoming in one cohesive document available to all interested parties.

## POPULATION MONITORING – CAPTURE SUMMARY

Annual capture of grizzly bears by the Department for population monitoring is analogous to annual monitoring programs for other species such as elk and deer. While the methods may differ, the goal is the same, to collect the data necessary to conserve and manage the populations. In addition, data collected during annual monitoring have been extremely useful in answering many important questions regarding the Greater Yellowstone Ecosystem (GYE) grizzly bear population. Data on grizzly bear survival and reproduction, biological samples, body condition, and collar locations are vital components of the overall population monitoring program. These data enable us to accurately monitor the grizzly bear population in relation to recovery goals in the GYE.

To maintain a representative sample of marked grizzly bears in the population, capture crews systematically trap in occupied grizzly bear habitats. Capture crews move to new areas as collars are deployed and trapping ceases by early fall to avoid conflicts with hunters during big game hunting seasons. The following summarizes capture efforts for the 2020 season.

*Capture in the time of Covid – additional guidelines were incorporated for safety of crew and bears during capture operations.*

**2020 WGFD Dubois Area Grizzly Bear Trapping Summary**

Early 2020 trapping efforts focused on the Dubois area of the Shoshone National Forest from 19 May to 29 June, 2020. Trapping occurred at 10 sites in the area. All traps, baits, scent lures, and other equipment were removed from sites by 2 July and warning and closure signs were removed from all areas by 7 July.

Twelve grizzly bears were captured in 17 capture events (one bear was captured twice and one bear was captured 5 times). Six bears were radio-telemetered with VHF or GPS collars (Table 1). Three bears were tagged and biological samples were taken but not radio collared. No black bears were captured.

**Table 1.** Grizzly bears captured in the Dubois area of the Shoshone National Forest, May-June 2020.

| Bear ID | Capture Date | Sex/Age Class | Location | Collar |
|---|---|---|---|---|
| 990 | 5/21/20 and 6/1/20 | Subadult male | Lower Brent Creek | GPS collar |
| G265 | 5/27, 5/30, 6/3, 6/10, 6/14, and 6/18/20 | Subadult male | Lower Brent Creek | No collar |
| G266 | 5/27/20 | Subadult male | Elkhorn | No collar |
| 993 | 6/5/20 | Adult male | Charlie Creek | GPS collar |
| 409 | 6/6/20 | Adult female | East Fork Long Creek | GPS collar |
| 747 | 6/13/20 | Adult female | West Fork Long Creek | VHF collar |
| 978 | 6/20/20 | Subadult male | Gravel Pit | GPS collar |
| 997 | 6/20/20 | Subadult male | Lower Brent Creek | GPS collar |
| 999 | 6/23/20 | Adult female | Gravel Pit | VHF collar |
| 987 | 6/26/20 | Adult Male | Green Creek | VHF collar |
| G267 | 6/26/20 | Yearling Male | Gravel Pit | No collar |
| 1000 | 6/26/20 | Yearling Male | Gravel Pit | Ear tag transmitter |

**2020 WGFD Blackrock Area Grizzly Bear Trapping Summary**

Late 2020 trapping efforts focused on the Blackrock area of the Bridger-Teton National Forest from 27 July to 21 August. Trapping occurred at 9 sites in the area. All traps, baits, scent lures, and other equipment were removed from sites by 21 August and warning and closure signs were removed from all areas by 26 August.

Six grizzly bears were captured in 9 capture events (one bear was captured twice and one bear was captured 3 times). Five bears were collared with VHF or GPS collars (Table 2). One bear was tagged and biological samples were taken but not radio collared. Two black bears were captured and released unhandled.

**Table 2.** Grizzly bears captured in the Blackrock area of the Bridger-Teton National Forest, July-August 2020.

| Bear ID | Capture Date | Sex/Age Class | Location | Collar |
|---|---|---|---|---|
| G269 | 7/31/20 and 8/5/20 | Subadult male | Kettle Creek & Moosehorn Flats | No collar |
| 1008 | 8/3/20 | Adult Male | North Fork Spread Creek | GPS collar |
| 1009 | 8/8/20, 8/12/20, 8/20/20 | Subadult female | Grouse Cr, Skull Cr, & Kettle Cr | VHF collar |
| 819 | 8/8/20 | Adult male | Moosehorn Flats | GPS collar |
| 1010 | 8/8/20 | Adult male | Kettle Cr | VHF collar |
| 805 | 8/15/20 | Adult male | Moosehorn Flats | GPS collar |

## GRIZZLY BEAR OBSERVATION FLIGHTS

The Department and other members of the Interagency Grizzly Bear Study Team (IGBST), conduct observation flights to monitor the Greater Yellowstone grizzly bear population and estimate abundance. In 2020, Covid-19 safety protocols resulted in a reduced number of observation flights, with only one round flown, and most flights were conducted with only the pilot and no secondary observer. Also, the Grizzly Bear Observation Units (GBOUs) in the southern portion of the Greater Yellowstone Ecosystem (GYE; Figure 1) were not flown in an effort to reduce overall flight time and because grizzly bears in these GBOUs are rarely observed due to low densities and heavily forested terrain. The remaining GBOUs in the northern GYE were flown in early August to maximize visibility.

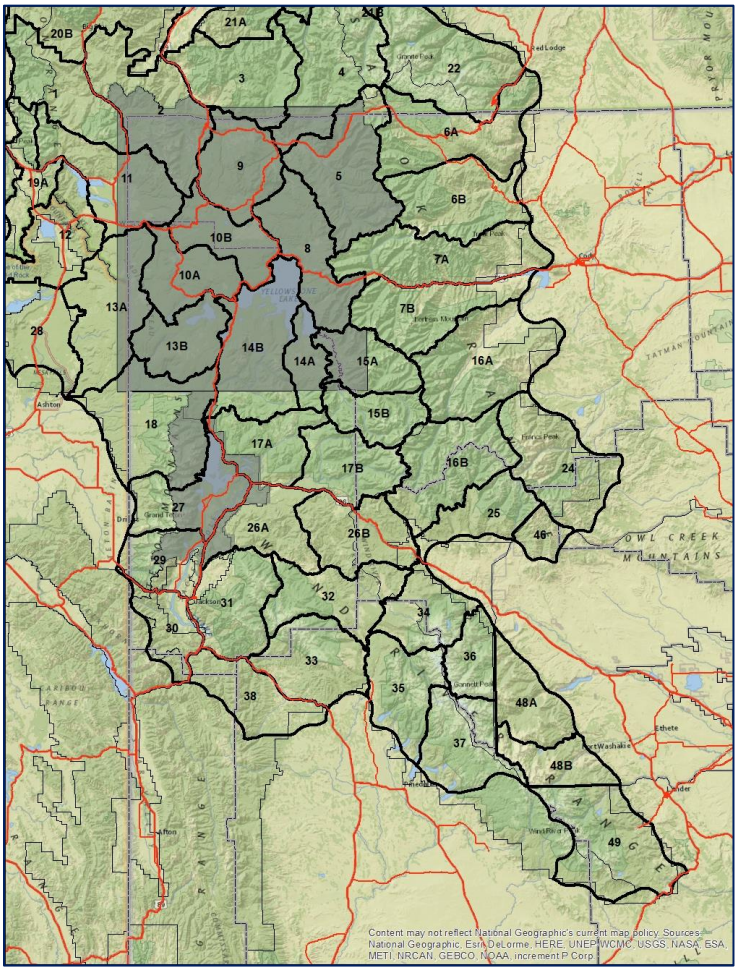



**Figure 1.** Grizzly Bear Observation Units (GBOUs) in the Wyoming portion of the Greater Yellowstone Ecosystem.

The Department spent 30.7 hours flying grizzly bear during the singe round of observation flights conducted in 2020, compared to a total of 75.4 hours in Round 1 (48.3 hours) and Round 2 (27.1 hours) of 2019. A total of 350 grizzly bears were observed in the Wyoming GBOUs in 2020 compared to a total of 514 bears observed in Round 1 (265 bears) and Round 2 (249 bears) of 2019. Thus, the rate of observations for 2020 was 11.4 grizzly bears observed per hour, compared to 6.8 in 2019. The number of females with cubs-of-year (Fcoy or COY) groups observed during 2020 flights was also higher than that of the total observed in both rounds of 2019, with 37 observed compared to 36 observed in the first round (20 $F_{COY}$) and second round (16 $F_{COY}$) of 2019 (Table 3).

**Table 3.** Composition of grizzly bears observed in Round 1 during 2020 observation surveys in Wyoming.

| | | **Females with COY** | | | **Females with Yearlings** | | | **Females with 2 Year Olds** | | | | **All Other Grizzly Bears** | **Total No. Bears Observed** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **# of COY** | | | **# of Yrlngs** | | | **# of 2 Yr Olds** | | | | | |
| Date | Unit | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | | |
| 8/5 | 6A | -* | - | - | - | - | - | - | - | - | - | 0 | 0 |
| 8/7 | 6B | 1 | 4 | - | - | 2 | - | - | - | - | - | 20 | 40 |
| 8/8 | 7A | 1 | 3 | - | 2 | - | - | - | - | - | - | 7 | 22 |
| 8/9 | 7B | 2 | 1 | - | - | 2 | - | - | - | - | - | 26 | 39 |
| 8/11 | 15A | - | 2 | - | - | - | - | - | - | - | - | 9 | 15 |
| 8/12 | 15B | 1 | 4 | - | - | 3 | - | - | - | - | - | 8 | 31 |
| 8/10 | 16A | - | 4 | 1 | 2 | 2 | - | - | - | - | - | 22 | 48 |
| 8/16 | 16B | 3 | 3 | - | 1 | 3 | - | - | - | - | - | 17 | 43 |
| 8/3 | 17A | - | - | - | - | - | - | - | - | - | - | 10 | 10 |
| 8/4 | 17B | 1 | - | - | - | - | - | - | - | - | - | 10 | 12 |
| 8/15 | 24 | - | 6 | - | 3 | 2 | 1 | - | - | - | - | 48 | 82 |
| 8/14 | 25 | - | - | - | - | - | - | - | - | - | - | 0 | 0 |
| 8/2 | 26A | - | - | - | - | - | - | - | - | - | - | 2 | 2 |
| 8/1 | 26B | - | - | - | - | - | 1 | - | - | - | - | 2 | 6 |
| All Areas | | 9 | 27 | 1 | 8 | 14 | 2 | 0 | 0 | 0 | 0 | 181 | 350 |

*- indicates no bears observed

***Grizzly Bear Use of Insect Aggregation Sites*** *(Daniel D. Bjornlie, Wyoming Game and Fish Department; and Mark A. Haroldson, Interagency Grizzly Bear Study Team, U.S. Geological Survey)*

Army cutworm moths (*Euxoa auxiliaris*) were first recognized as an important food source for grizzly bears in the GYE during the mid-1980s (Mattson et al. 1991*b*, French et al. 1994). Early observations indicated that moths, and subsequently bears, showed specific site fidelity. These sites are generally high alpine areas dominated by talus and scree adjacent to areas with abundant alpine flowers. Because insects other than army cutworm moths may be present and consumed by bears (e.g., ladybird beetles [Coccinellidae family]) as well, we generally refer to such areas as "insect aggregation sites." Within the GYE, observations indicate army cutworm moths are the primary food source at these sites.

Since the discovery of bears feeding at insect aggregation sites, numerous bears have been observed at or near these sites. Observability is high because of lack of tree cover and numbers of bears using the sites. However, complete tabulation of grizzly presence at insect sites is extremely difficult. Only a few sites have been investigated by ground reconnaissance and the boundaries of sites are not clearly known. In addition, it is likely that the size and location of aggregation sites fluctuate from year to year with moth abundance and variation in environmental factors such as snow cover.

Our knowledge of these sites has increased over time and techniques for monitoring grizzly bear use of these sites have changed. We developed a technique in 2000 that delineates sites by buffering only the locations of bears observed actively feeding at insect aggregation sites by 500 m; this distance was used to account for error in aerial locations. The borders of the overlapping buffers at individual insect sites are dissolved to produce a single polygon for each site. These sites are identified as "confirmed" sites. Because these polygons are only created around feeding locations, the resulting site conforms to the topography of the mountain or ridge top where bears feed and does not include large areas of non-talus habitat that are not suitable for cutworm moths. Records from the grizzly bear location database from July 1 through September 30 of each year are then overlaid on these polygons and enumerated. Areas suspected as insect aggregation sites but dropped from the list of confirmed sites, and sites with only one observation of an actively feeding bear or multiple observations in a single year, are termed "possible" sites and will be monitored in subsequent years for additional observations of actively feeding bears. These sites may then be added to the confirmed sites list. When the status of a site is changed to confirmed, analysis is done on all data back to 1986 to determine the historical use of that site. Therefore, the number of bears using insect aggregation sites in past years may change as new sites are added, and data from this annual report may not match those of past reports. New observations of grizzly bears actively feeding in previously undocumented areas will be added as possible sites and monitored for future use. In addition, as new observations of actively feeding bears are added along the periphery of existing sites, the polygons defining these sites increase in size and, thus, more overlaid locations fall within the site. This retrospective analysis brings us closer each year to the "true" number of bears using insect aggregation sites in past years.

Covid-19 safety protocols resulted in a reduced number of observation flights, and most of those were conducted with only the pilot and no secondary observer. However, analysis of grizzly bear use of insect aggregation sites in 2020 still resulted in an additional 101 observations of actively feeding grizzly bears on previously identified confirmed sites. In addition, there were observations of actively feeding grizzly bears at 1 site previously classified as possible and 1 observation of an actively feeding grizzly bear at a previously undocumented site. Thus, 1 previous possible site was reclassified to confirmed, and 1 new possible site was added in 2020, bringing the number of sites to 34 confirmed and 20 possible.

Overall insect aggregation site use by grizzly bears in 2020 ($n$ = 343) was the third highest recorded since the beginning of the monitoring period in 1986 (Table 4). This number includes all grizzly bear locations from aerial observation flights, telemetry flights, and observations made during flights for other species. The number of grizzly bears documented on sites and the percentage of confirmed sites with documented use by grizzly bears varies from year to year, suggesting that moth numbers may be greater in some years than others (Figure 2), which may be due to variable snow conditions or the number of moths migrating from the plains. In 1993, a year with unusually high snowpack, the percentage of confirmed sites used by bears (Figure 2) and the number of observations

recorded at insect sites were very low (Table 4). In all other years, the percentage of insect aggregation sites used by grizzly bears varied between 47 and 85% (Figure 2).

However, when we control for the amount of observation effort by including only bears observed during regularly conducted observation flights (see "***Observation Flights***"), the number of bears observed using insect aggregation sites per hour of flights has shown an overall increasing trend since these flights began in 1997 (Figure 3). While the number of bears observed and observation flight hours in 2020 were about 30% and 40% lower than average, respectively, due to Covid-19 protocols, the number of observations per hour increased slightly from 2019 ($n$ = 204 observations, 19.3 hrs flown, 10.6 observations/hour flown) (Figure 3). The increase in reported observations of grizzly bears using insect aggregation sites from ground-based observers and our increased use of GPS collars with satellite technology has resulted in the need to censor these locations to prevent a bias in comparisons with previous years. The number of aerial telemetry locations and observations from Table 4 reflect this change and may differ from previous annual reports.

The IGBST maintains an annual list of unique females observed with cubs (see Table 5 in "***Estimating Number of Females with Cubs***"). Since 1986, 1,334 initial sightings of unique females with cubs have been recorded, of which 384 (28.8%) have occurred at (<500 m, $n$ = 356) or near (<1,500 m, $n$ = 28) insect aggregation sites. In 2020, 18 of the 58 (31.0%) initial sightings of unique females with cubs were observed at insect aggregation sites; higher than the mean of 26.4% for the previous five years (2015–2019, Table 5).

Survey flights at or near (<1,500 m) insect aggregation sites contribute to the count of unique females with cubs. However, the contribution from these flights is typically low, with a 10-year mean of 16.0 initial sightings/year since 2011. If these sightings are excluded, a similar trend in the annual number of unique sightings of females with cubs is still evident (Figure 4), suggesting that other factors besides observation effort at insect aggregation sites are responsible for the increase in sightings of females with cubs over time.

**Table 4. Summary statistics for grizzly bear use of confirmed insect aggregation sites, Greater Yellowstone Ecosystem, 1986–2020.**

| Year | Number of confirmed sites[a] | Number of sites used[b] | Number of aerial telemetry locations | Number of ground or aerial observations |
|---|---|---|---|---|
| 1986 | 4 | 2 | 7 | 5 |
| 1987 | 5 | 3 | 3 | 17 |
| 1988 | 5 | 3 | 11 | 28 |
| 1989 | 9 | 7 | 9 | 41 |
| 1990 | 14 | 11 | 9 | 77 |
| 1991 | 16 | 13 | 13 | 169 |
| 1992 | 18 | 12 | 6 | 108 |
| 1993 | 19 | 3 | 1 | 2 |
| 1994 | 19 | 9 | 1 | 32 |
| 1995 | 21 | 12 | 7 | 40 |
| 1996 | 23 | 15 | 21 | 68 |
| 1997 | 24 | 16 | 17 | 84 |
| 1998 | 27 | 22 | 9 | 185 |
| 1999 | 27 | 14 | 26 | 156 |
| 2000 | 27 | 13 | 49 | 97 |
| 2001 | 28 | 18 | 23 | 128 |
| 2002 | 29 | 20 | 30 | 251 |
| 2003 | 29 | 20 | 9 | 163 |
| 2004 | 29 | 16 | 2 | 134 |
| 2005 | 31 | 19 | 16 | 198 |
| 2006 | 31 | 17 | 15 | 147 |
| 2007 | 31 | 19 | 19 | 161 |
| 2008 | 31 | 23 | 16 | 181 |
| 2009 | 33 | 23 | 11 | 170 |
| 2010 | 33 | 18 | 3 | 134 |
| 2011 | 34 | 21 | 9 | 164 |
| 2012 | 34 | 24 | 20 | 253 |
| 2013 | 34 | 23 | 27 | 297 |
| 2014 | 34 | 24 | 11 | 343 |
| 2015 | 34 | 21 | 13 | 210 |
| 2016 | 34 | 20 | 11 | 208 |
| 2017 | 34 | 21 | 20 | 279 |
| 2018 | 34 | 20 | 18 | 267 |
| 2019 | 34 | 29 | 20 | 335 |
| 2020 | 34 | 27 | 19 | 324 |
| Total | | | 501 | 5,456 |

[a] The year of discovery was considered the first year a telemetry location or aerial observation was documented at a site. Sites were considered confirmed after additional locations or observations in a subsequent year and every year thereafter regardless of whether or not additional locations were documented.

[b] A site was considered used if ≥1 location or observation was documented within the site during July–September of that year.

**Table 5. Initial sightings of unique females with cubs on or near insect aggregation sites, Greater Yellowstone Ecosystem, 1986–2020.**

| Year | Number of unique females with cubs[a] | Number of sites with an initial sighting[b] | Initial sightings | | | |
|---|---|---|---|---|---|---|
| | | | Within 500 m[b] | | Within 1,500 m[c] | |
| | | | *n* | % | *n* | % |
| 1986 | 25 | 0 | 0 | 0.0 | 0 | 0.0 |
| 1987 | 13 | 0 | 0 | 0.0 | 0 | 0.0 |
| 1988 | 19 | 1 | 2 | 10.5 | 2 | 10.5 |
| 1989 | 16 | 1 | 1 | 6.3 | 1 | 6.3 |
| 1990 | 25 | 4 | 4 | 16.0 | 5 | 20.0 |
| 1991 | 24 | 7 | 13 | 54.2 | 14 | 58.3 |
| 1992 | 25 | 5 | 7 | 28.0 | 9 | 36.0 |
| 1993 | 20 | 1 | 1 | 5.0 | 1 | 5.0 |
| 1994 | 20 | 3 | 5 | 25.0 | 5 | 25.0 |
| 1995 | 17 | 2 | 2 | 11.8 | 2 | 11.8 |
| 1996 | 33 | 7 | 7 | 21.2 | 8 | 24.2 |
| 1997 | 31 | 8 | 11 | 35.5 | 11 | 35.5 |
| 1998 | 35 | 10 | 13 | 37.1 | 13 | 37.1 |
| 1999 | 33 | 3 | 6 | 18.2 | 7 | 21.2 |
| 2000 | 37 | 6 | 9 | 24.3 | 10 | 27.0 |
| 2001 | 42 | 7 | 13 | 31.0 | 13 | 31.0 |
| 2002 | 52 | 11 | 18 | 34.6 | 18 | 34.6 |
| 2003 | 38 | 11 | 20 | 52.6 | 20 | 52.6 |
| 2004 | 49 | 11 | 17 | 34.7 | 17 | 34.7 |
| 2005 | 31 | 5 | 7 | 22.6 | 8 | 25.8 |
| 2006 | 47 | 11 | 15 | 31.9 | 16 | 34.0 |
| 2007 | 50 | 10 | 17 | 34.0 | 17 | 34.0 |
| 2008 | 44 | 7 | 11 | 25.0 | 14 | 31.8 |
| 2009 | 42 | 4 | 6 | 14.3 | 7 | 16.7 |
| 2010 | 51 | 7 | 9 | 17.6 | 9 | 17.6 |
| 2011 | 39 | 6 | 7 | 17.9 | 7 | 17.9 |
| 2012 | 49 | 6 | 13 | 26.5 | 13 | 26.5 |
| 2013 | 58 | 8 | 14 | 24.1 | 15 | 25.9 |
| 2014 | 50 | 11 | 21 | 42.0 | 23 | 46.0 |
| 2015 | 46 | 7 | 11 | 23.9 | 13 | 28.3 |
| 2016 | 50 | 7 | 13 | 26.0 | 17 | 34.0 |
| 2017 | 58 | 7 | 12 | 20.7 | 12 | 20.7 |
| 2018 | 58 | 8 | 18 | 31.0 | 20 | 34.5 |
| 2019 | 49 | 8 | 15 | 30.6 | 17 | 34.7 |
| 2020 | 58 | 15 | 18 | 31.0 | 20 | 34.5 |
| Total | 1,334 | | 356 | | 384 | |
| Mean | 38.1 | 6.4 | 10.2 | 24.4 | 11.0 | 26.2 |

[a] Initial sightings of unique females with cubs; see Table 5.

[b] Insect aggregation site is defined as a 500-m distance around a cluster of observations of bears actively feeding.

[c] This distance is 3 times what is defined as an insect aggregation site for this analysis because some observations may be of bears traveling to and from insect aggregation sites.

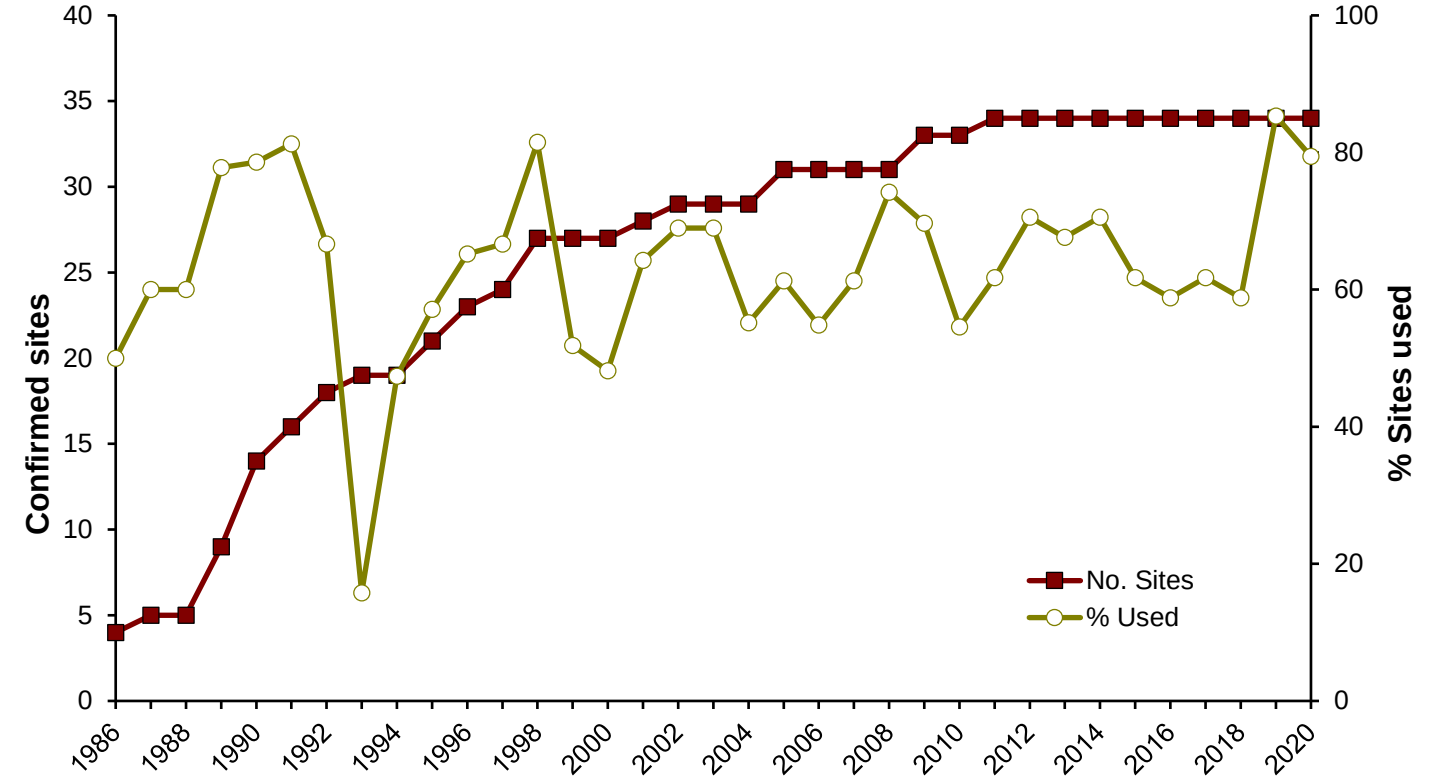



**Figure 2.** Annual number of confirmed insect aggregation sites and percent of those sites at which telemetry relocations of marked bears or visual observations of unmarked bears were recorded, Greater Yellowstone Ecosystem, 1986–2020.

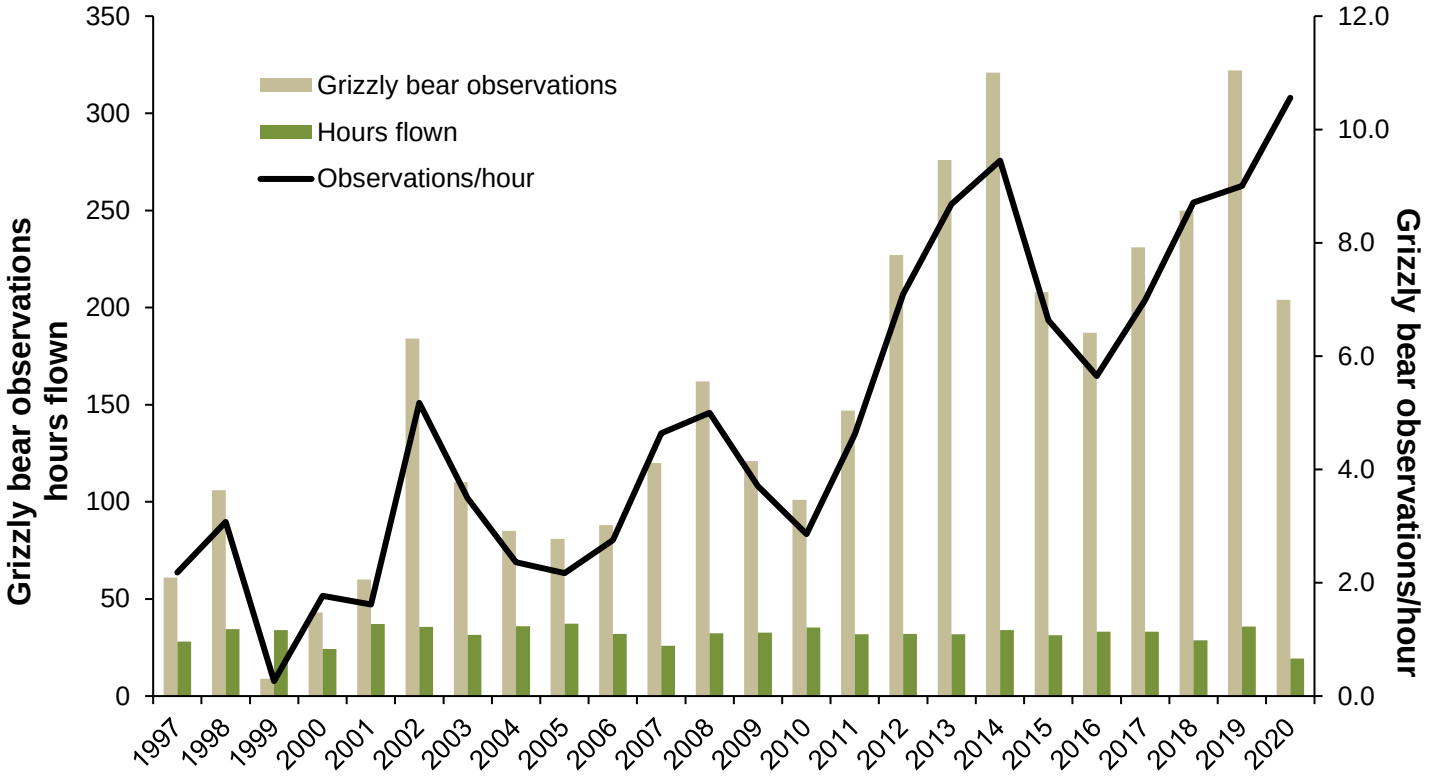



**Figure 3.** Number of grizzly bears observed (tan bars) on insect aggregation sites during observation flights only, hours flown (green bars) for these bear management units (BMU), and grizzly bear observations per hour (black line) during observation flights of BMUs containing all known insect aggregation sites, Greater Yellowstone Ecosystem, 1997–2020.

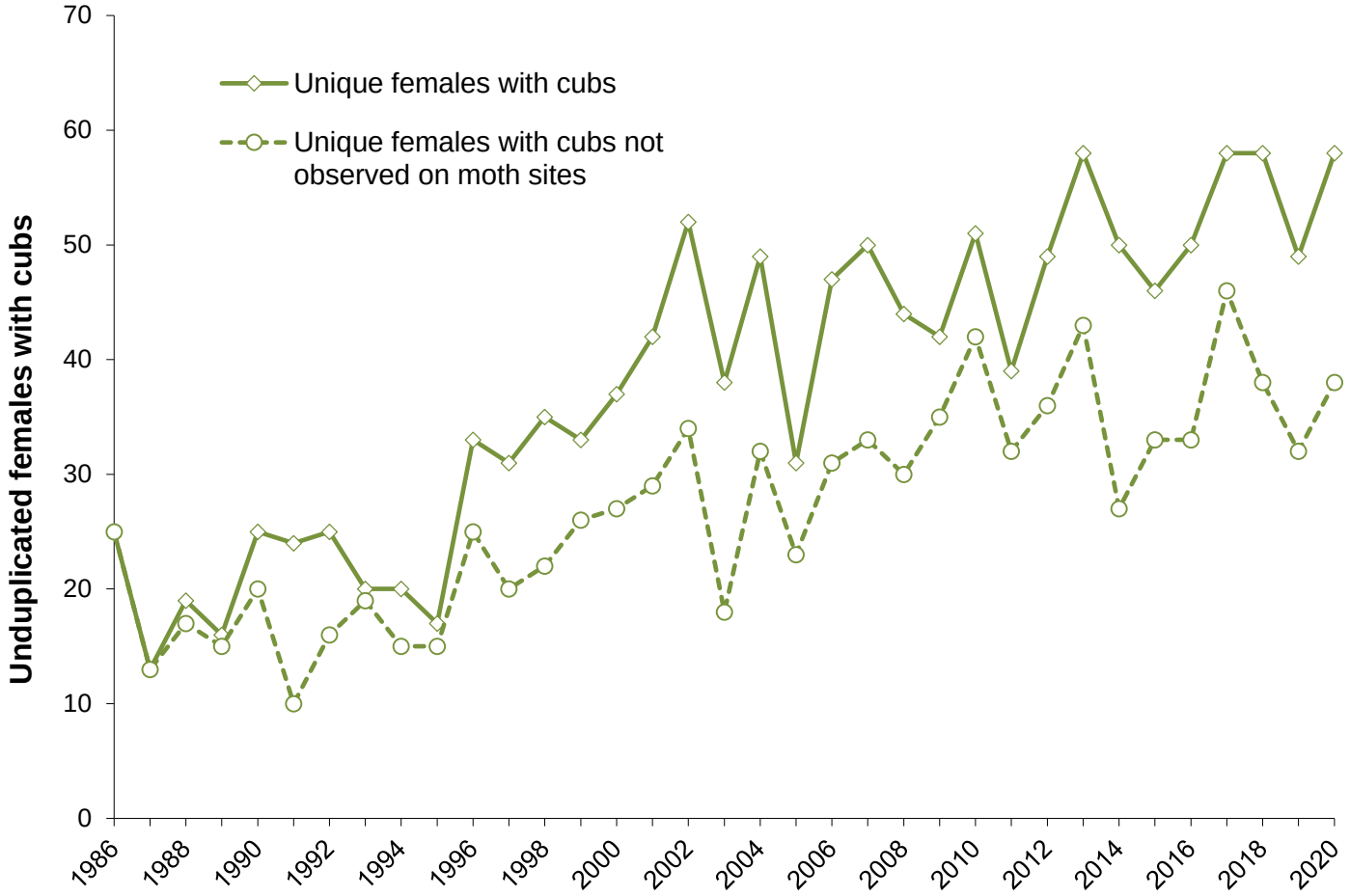
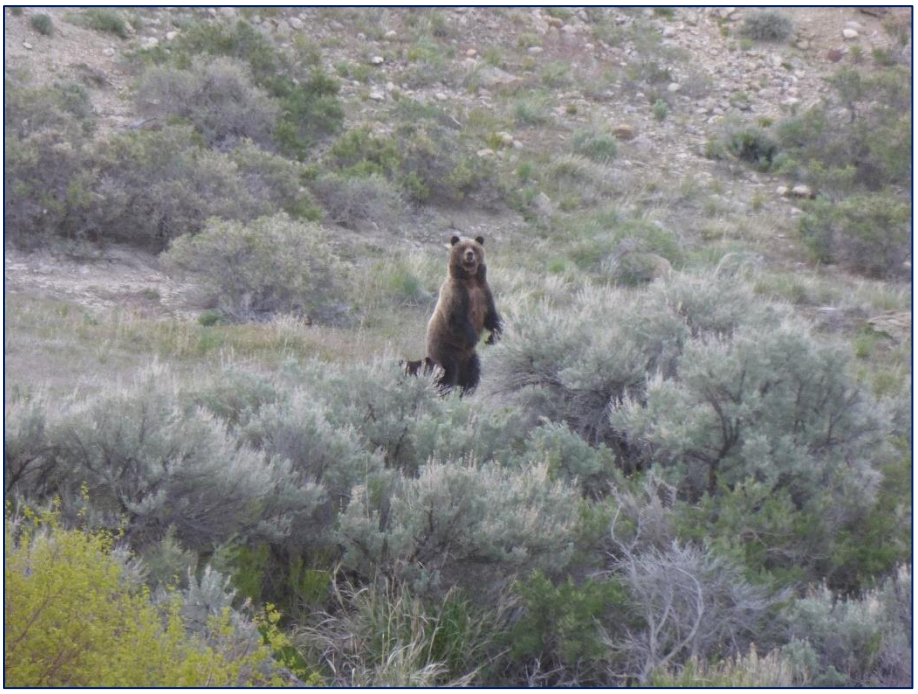



**Figure 4.** Total number of unique females with cubs observed annually in the Greater Yellowstone Ecosystem and the number of unique females with cubs not found within 1,500 m of known insect aggregation sites, 1986–2020.



***Grizzly Bear Occupied Range in the Greater Yellowstone Ecosystem, 1990–2020*** *(Daniel D. Bjornlie, Wyoming Game and Fish Department; and Mark A. Haroldson, Interagency Grizzly Bear Study Team, U.S. Geological Survey)*

The Greater Yellowstone Ecosystem (GYE) grizzly bear population had been reduced to only a few hundred bears when it was first listed as threatened under the Endangered Species Act (ESA) in 1975. As the population increased in the intervening years, grizzly bears have reoccupied areas of their former range, including areas where their presence has not been known for over 100 years. Documenting range expansion has become an important part of grizzly bear population monitoring, providing researchers, managers, and the public with spatial data on grizzly bear presence necessary to inform conservation and management.

From its inception, the Interagency Grizzly Bear Study Team has recorded confirmed locations of grizzly bears throughout the GYE as part of routine population monitoring. These locations have been used to create periodic estimates of occupied grizzly bear range since the early 1980s (Basile 1982, Blanchard 1992, Schwartz et al. 2002, Schwartz et al. 2006). Bjornlie et al. (2014) developed a new technique that uses all confirmed grizzly bear locations. Those locations are first overlaid on a grid of 3-km cells to determine occupancy and the areas surrounding the centers of occupied cells are then interpolated to create a surface of occupied range (Bjornlie et al. 2014). Since the adoption of this method, biannual updates of grizzly bear occupied range have revealed steady range expansion. Additionally, reanalysis of location data dating back to the 1970s provides estimates of historic grizzly bear range for direct comparison with current results.

Because grizzly bears are a long-lived species and the collection of confirmed locations over the entire GYE is not feasible on an annual basis, Bjornlie et al. (2014) recommended that location data be pooled over a 15–20 year period to ensure the data provide an accurate representation of grizzly bear occupied range. Therefore, we used a 15-year period of location data in a moving window analysis to provide annual estimates of occupied range. Thus, an annual estimate contains location data from that year and the previous 14 years (e.g., 2006–2020 for the reported year 2020). This report is an update of the 2018 occupied range analysis presented in the 2018 IGBST annual report (Bjornlie and Haroldson 2019).

Using this technique, analysis of grizzly bear locations from 1976 through 1990 produced an estimate of GYE grizzly bear occupied range almost entirely contained within the Grizzly Bear Recovery Zone established in the 1993 Grizzly Bear Recovery Plan (USFWS 1993) (Figure 5). By 2000, occupied range had grown slightly to the south and east, but was still mostly contained within the Recovery Zone (Figure 5). However, in the 2000s, range expansion gained momentum and larger increases were seen, especially following mountainous terrain to the northwest and southeast of the GYE Recovery Zone (Figure 7). The addition of 2011-2020 location data resulted in nearly all of the Absaroka and Beartooth Ranges falling within grizzly bear occupied range, as well as the entire Wind River Range. To the west, the entirety of the Centennial and Gravelly Ranges were included, along with a portion of the Ruby Range, a recent increase from the previous 2018 analysis (Bjornlie and Haroldson 2019) (Figure 5). To provide spatial perspective, the southeastern extent of 2020 occupied range at the tip of the Wind River Range is closer to the towns of Salt Lake City, Utah (294 km) and Fort Collins, Colorado (366 km) than it is to Bozeman, Montana (405 km) at the northern extent of GYE grizzly bear range.

From 1990 through 2020, the area of occupied range has increased steadily at a rate of 4% per year from just over 23,000 $km^2$ to over 70,000 $km^2$ (Figure 6). Grizzly bear occupied range now includes 97.9% of the Demographic Monitoring Area (DMA), and has expanded 40 km beyond the DMA boundary to the east and west and by as much as 60 km in the Wyoming Range in the southwestern portion of the GYE. The 2020 data show that 30.6% of GYE grizzly bear range is now outside the DMA boundary (Figure 8). As grizzly bears advance into new areas, they are encountering more human-dominated landscapes, many of which are private lands dominated by agricultural uses. By 1990, just over 600 $km^2$ of private lands were encompassed within grizzly bear occupied range, an area half the size of Grand Teton National Park. By 2020, over 12,000 $km^2$ of private lands occurred within occupied range, an area more than 2,000 $km^2$ larger than Yellowstone and Grand Teton National Parks and the John D. Rockefeller Parkway combined (Figure 7). The expansion into private lands can result in an increased potential for human-bear conflicts.

There were only a few confirmed grizzly bear locations outside occupied range in 2019 and 2020. The location farthest beyond occupied range was a 2020 verified location at the southern tip of the Wyoming Range in western Wyoming, approximately 33 km north of the town of Kemmerer and over 100 km south of the DMA boundary. This is the most southerly confirmed location of a grizzly bear in the GYE since well before recovery efforts began. This location adds to other

wide-ranging locations of bears from 2018 when we documented two of the most-easterly confirmed locations since grizzly bears were listed under the ESA. Grizzly tracks were confirmed near Ocean Lake, approximately 25 km northwest of Riverton, Wyoming. To the north, a female grizzly bear with 2 cubs was captured along the Shoshone River near the town of Byron, Wyoming, a heavily agricultural area approximately 50 km northeast of Cody, Wyoming. This location is 60 km east of the historically occupied Absaroka Mountains, but only 40 km west of the currently unoccupied Bighorn Mountains in north-central Wyoming, where grizzly bears have not been documented for nearly 100 years.

Verified locations of grizzly bears in places novel in recent history have become relatively common in many areas of the GYE and beyond. Confirmed locations from 2018-2020 west of Interstate 15 in the Pioneer Mountains and Big Hole Valley near Wisdom, Montana and in the Bitterroot Recovery Zone in central Idaho, are located outside the Yellowstone Distinct Population Segment and could be bears originating from either the Greater Yellowstone population or the Northern Continental Divide population in northwestern Montana. These outlying locations do not necessarily constitute occupied range, but reveal the leading edges of grizzly bear expansion within and between ecosystems. The recovery of grizzly bears in the GYE is an important wildlife conservation success story, but this success presents formidable new challenges for wildlife managers and people living, working, and recreating in these areas, particularly in recently occupied areas where bear resistant infrastructure often does not exist.

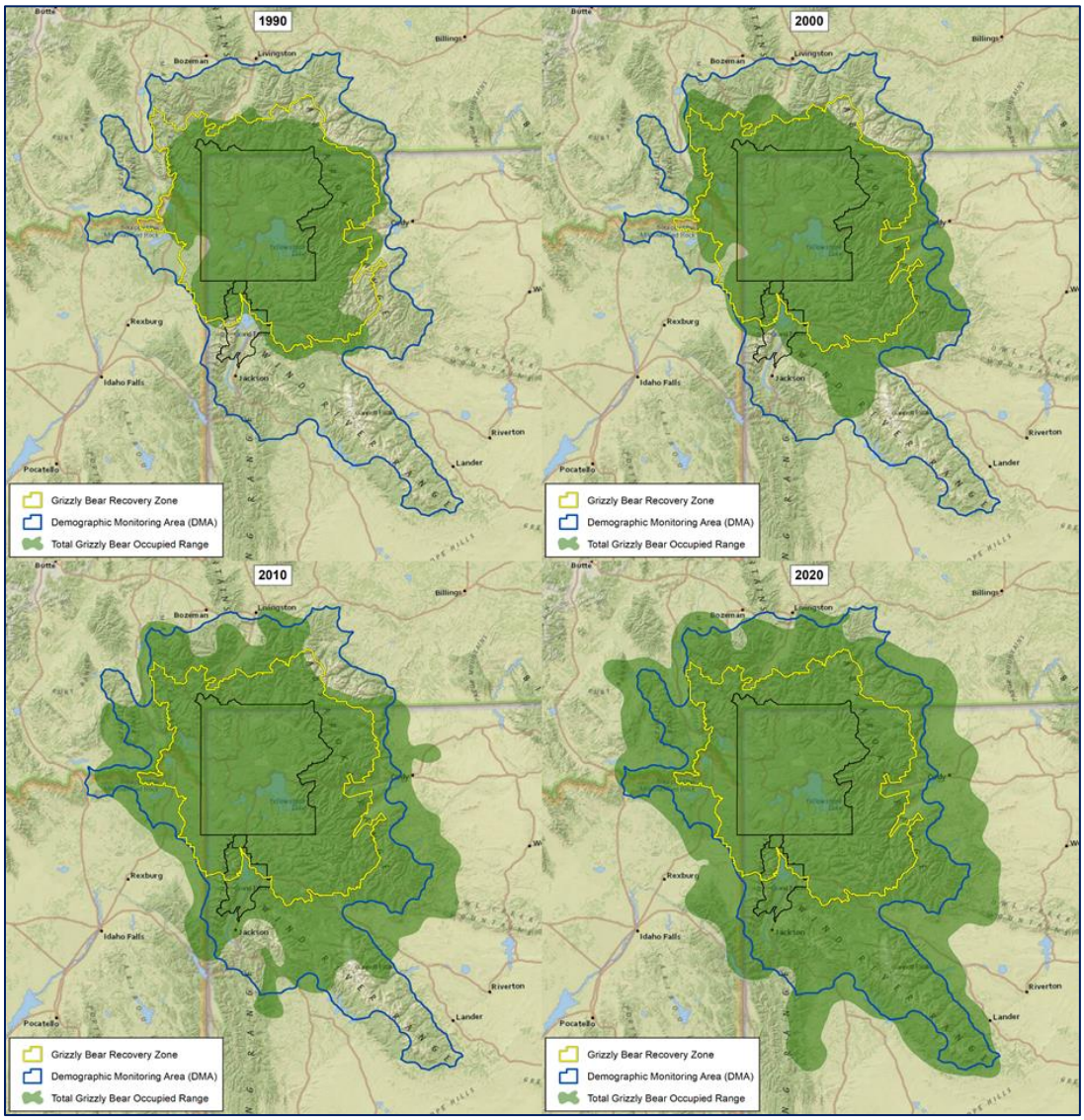



**Figure 5.** Grizzly bear occupied range (green shaded area) in the Greater Yellowstone Ecosystem, 1990, 2000, 2010, and 2020.

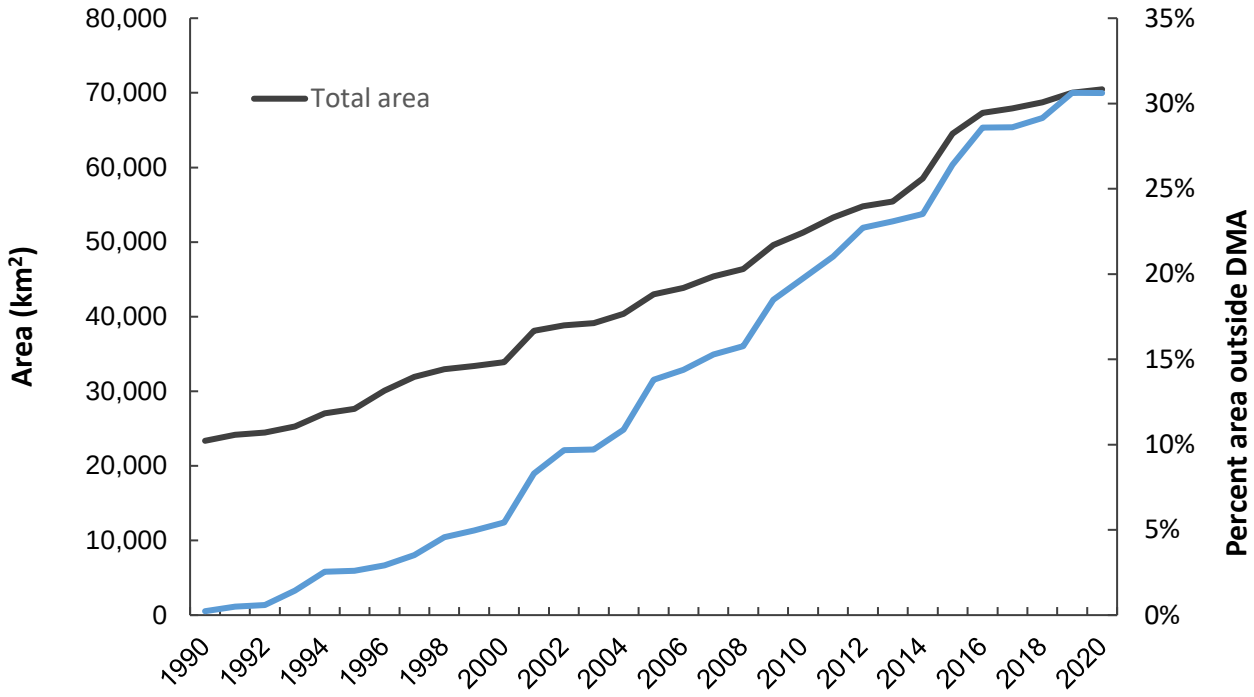



**Figure 6.** Total area of grizzly bear occupied range and percent of area of occupied range outside the Demographic Monitoring Area (DMA) in the Greater Yellowstone Ecosystem, 1990–2020.

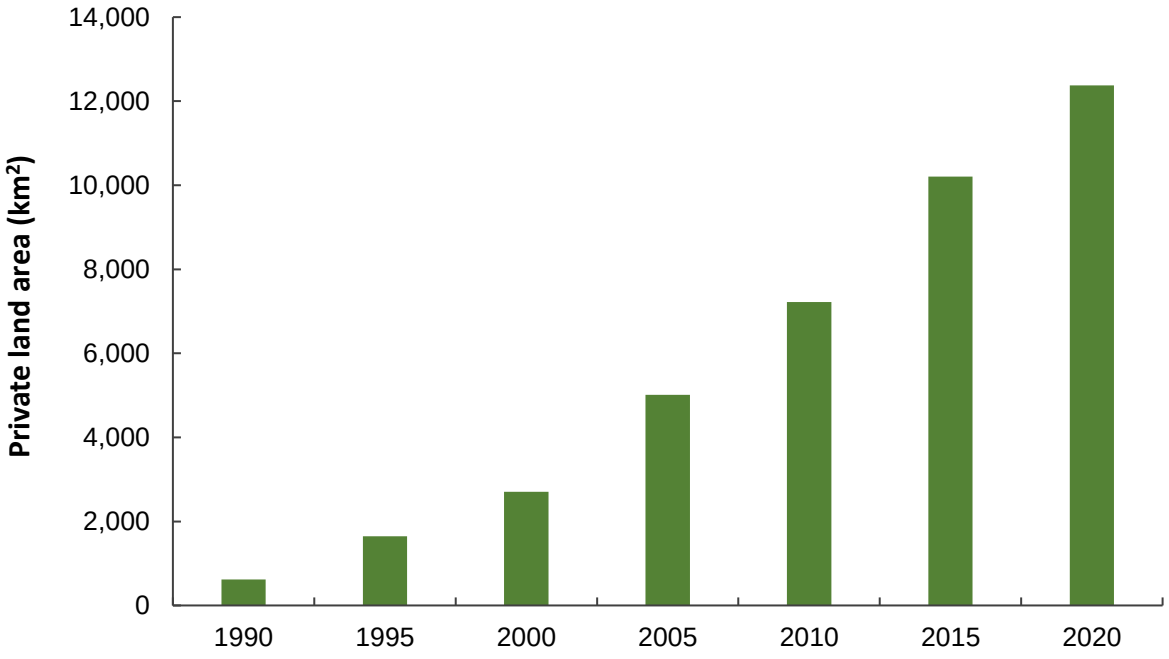



**Figure 7.** Area of private land within grizzly bear occupied range in the Greater Yellowstone Ecosystem in 5-year intervals, 1990–2020.

## PUBLICATIONS AND UPDATES

Personnel with the Department's LCS have been authors and/or collaborators of multiple peer-reviewed research papers and popular articles on grizzly bear ecology. These publications are merely examples of relevant information available for GYE grizzly bears and continue to be essential in demonstrating the recovery of the population. These publications are not opinion based or internet blogs, but rather represent the science and data that drive management and conservation of grizzly bears.

For a detailed reference of the science behind grizzly bear conservation and listing of relevant peer-reviewed literature published by the Section and other members of the Interagency Grizzly Bear Study team visit the United States Geological Service web site at: https://www.usgs.gov/science/interagency-grizzly-bear-study-team?qt-science_center_objects=0#qt-science_center_objects

For information specific to the Wyoming Game and Fish Department's grizzly bear management program, including links to publications, reports, updates, and plan visit: https://wgfd.wyo.gov/Wildlife-in-Wyoming/More-Wildlife/Large-Carnivore/Grizzly-Bear-Management


*In addition to publications of annual reports, peer-reviewed literature and updates, LCS personnel contributed heavily to the award winning Wyoming Wildlife Magazine publication devoted to grizzly bears in Wyoming.*

## GRIZZLY BEAR CONFLICT MANAGEMENT

Human-grizzly bear interactions and conflicts in Wyoming are typically a result of grizzly bears seeking unnatural foods in association with people and property, close encounters with humans, or when grizzly bears kill livestock. The number and location of human-bear conflicts is influenced by unsecured unnatural attractants (e.g. human foods and garbage), natural food distribution and abundance, grizzly bear numbers and distribution, and human and livestock use patterns on the landscape.

The management technique of capturing grizzly bears in areas where they may come into conflict with people and relocating them to remote locations is a common practice throughout the world. Relocating bears achieves several social and conservation functions: (a) reduces the chance of property damage, livestock damage, or human interactions in areas where the potential for conflict is high; (b) reduces the potential for grizzly bears to become food conditioned and/or human habituated which often results in destructive and/or dangerous behaviors; (c) allows grizzly bears the opportunity to forage on natural foods and remain wary of people; and (d) could prevent removing grizzly bears from the population which may be beneficial in meeting population management objectives.

The Department relocates and removes black and grizzly bears as part of routine management operations. The decision to relocate or remove a bear is made after considering a number of variables including age and sex of the animal, behavioral traits, health status, physical injuries or abnormalities, type of conflict, severity of conflict, known history of the animal, human safety concerns, and population management objectives. Grizzly bears are relocated in accordance with state and federal law, regulation, and policy.

In 2005 the Wyoming Legislature created Wyoming Statute §23-1-1001 as follows:

> (a) Upon relocating a grizzly bear or upon receiving notification that a grizzly bear is being relocated, the department shall provide notification to the county sheriff of the county to which the grizzly bear is relocated within five (5) days of each grizzly bear relocation and shall issue a press release to the media and sheriff in the county where each grizzly bear is relocated;
>
> (b) The notice and press release shall provide the following information:
>
> (i) The date of the grizzly bear relocation;
> (ii) The number of grizzly bears relocated; and
> (iii) The location of the grizzly bear relocation, as provided by commission rule and regulation;
>
> (c) No later than January 15 of each year the department shall submit an annual report to the Joint Travel, Recreation, Wildlife, and Cultural Resources Interim committee. The annual report shall include the total number and relocation area of each grizzly bear relocated during the previous calendar year. The department shall also make available the annual report to the public.

Subsequently, the Commission promulgated Chapter 58 Notification of Grizzly Bear Relocation Regulation to further direct the implementation of W.S. §23-1-1001 as follows:

**Section 1. Authority.** This regulation is promulgated by authority of W.S. §23-1-1001.

**Section 2. Definitions.** Definitions shall be as set forth in Title 23, Wyoming Statutes, Commission regulations, and the Commission also adopts the following definitions:

(a) "County Sheriff" means the County Sheriff's Office in the county where a grizzly bear is relocated.

(b) "Location of the grizzly bear relocation" means the proper name of the drainage in which a grizzly bear is relocated and the estimated number of miles from the relocation site to the nearest municipality, topographical feature or geographic location.

(c) "Provide a press release" means the Department shall provide to the County Sheriff and the media in the county in which a grizzly bear is relocated, a press release including the location of the grizzly bear relocation, number of grizzly bears relocated, date of the relocation and the reason the grizzly bear was relocated.

**Section 3. Notification of relocation**. Upon relocating a grizzly bear or upon receiving notification that a grizzly bear is being relocated, the Department shall notify the County Sheriff of the date, number of grizzly bears relocated, the location of the grizzly bear relocation and the reason of the relocation via direct telephone conversation, written or electronic correspondence, or personal contact within five (5) days of the date of the relocation. The Department shall provide a press release to the County Sheriff and the media in the county where a grizzly bear is relocated of the date, number of grizzly bears relocated, the location of the grizzly bear relocation and the reason of the relocation within five (5) days of the date of relocation of any grizzly bear.

WYOMING GAME AND FISH COMMISSION

By:

_____

Mike Healy, President

Dated: January 22, 2014

## CONFLICT MANAGEMENT – CAPTURE, RELOCATION AND REMOVAL

During 2020, the WGFD captured 26 individual grizzly bears in 27 capture events in an attempt to prevent or resolve conflicts (i.e., one bear was captured twice; Figure 8, Tables 6 and 7). Most captures were adult males. Of the 27 capture events, 13 captures were a result of bears killing livestock (primarily cattle), 13 were captures involving bears that obtained food rewards (pet, livestock food, garbage, fruit trees), or were frequenting developed sites or human populated areas unsuitable for grizzly bear occupancy, and one non-target capture included in this section because the bear was relocated a short distance as a preventative measure..

Of the 27 capture events, 15 (56%) were in Park County, 5 (19%) were in Sublette County, 3 (11%) were in Fremont County, 2 (7%) were in Hot Springs County, and 2 (7%) were in Teton County (Table 6, Figure 8). Of the 27 capture events, 9 involved relocation. All relocated grizzly bears were released on U.S. Forest Service lands in or adjacent to the Recovery Zone (Figure 9). Of the 9 relocations, 6 were conducted in Park County (67%), 2 (22%) were in Teton County, and 1 (11%) was in Fremont County (Figure 9, Table 6).

Grizzly bears are removed from the population (lethally or through live placement in an approved facility) due to a history of previous conflicts, a known history of close association with humans, or they are deemed unsuitable for release into the wild (e.g., orphaned cubs, poor physical condition, or human safety concern). Of the 26 individual bears captured, 18 bears were removed from the population. Of these 18 human-caused mortalities associated with management captures, 9 were outside of the DMA. Removal of grizzly bears in Wyoming is dependent upon authorization from the U.S. Fish and Wildlife Service, after careful and thorough deliberation taking into account multiple factors unique to each conflict situation.

*The worn down teeth of a 34 year old grizzly bear caught involved with livestock depredation.*

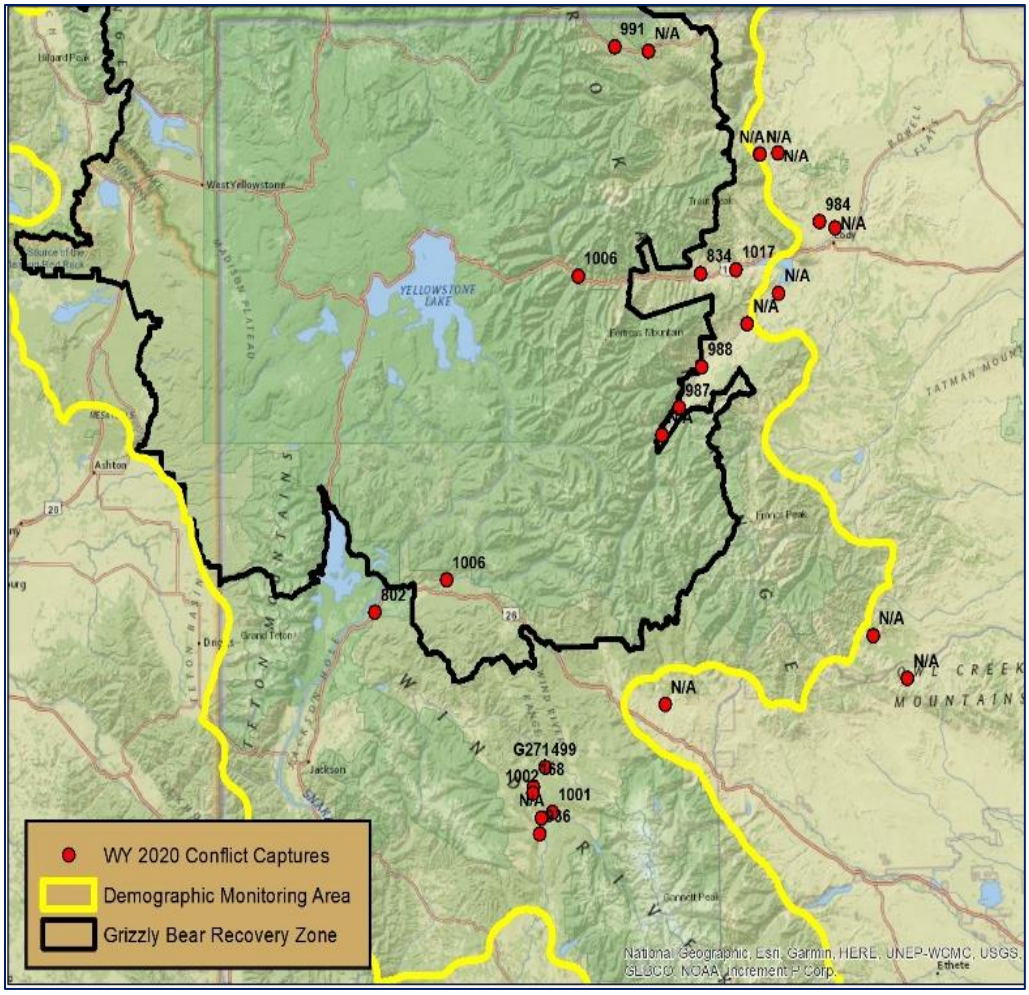



**Figure 8**. Locations ($n$ = 27) for grizzly bears captured in conflict management efforts in Wyoming portion of the Greater Yellowstone Ecosystem, 2020. Grizzly bears with "G" in front of their number were marked but not fitted with radio collars typically because they were too young to be collared. Because of the mapping scale, some locations are combined at one symbol. A complete list is provided in Table 6.

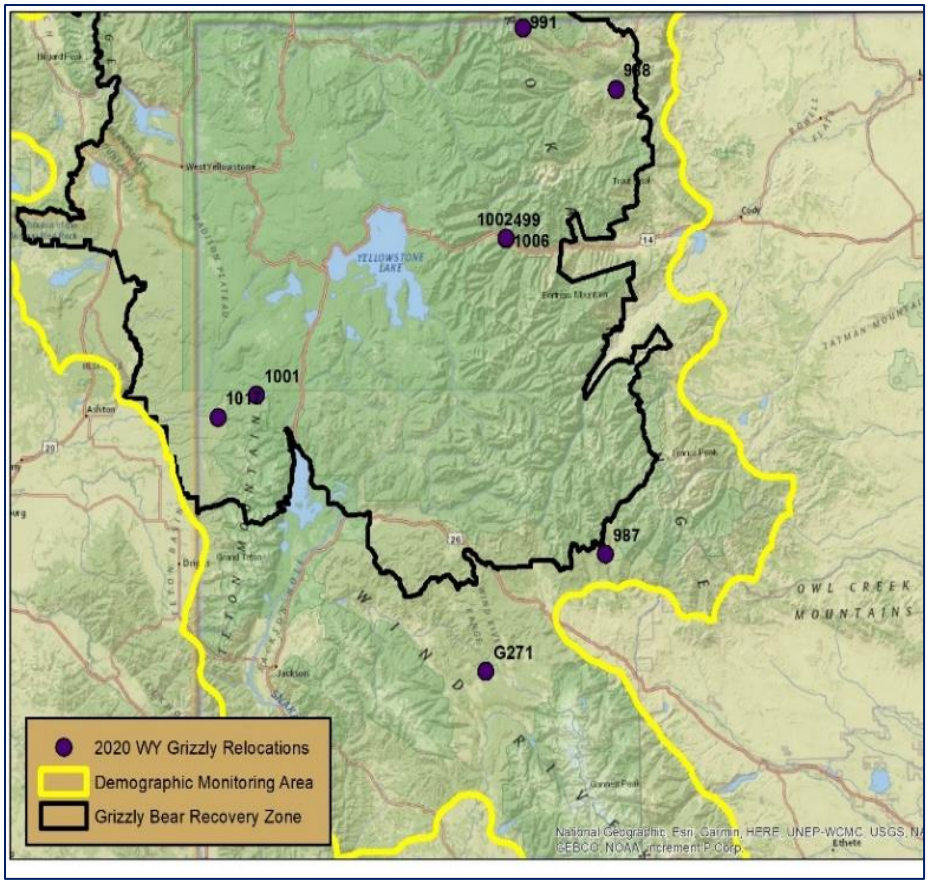



**Figure 9**. Release locations ($n$ = 9) for grizzly bears captured, relocated, or released on site in conflict management efforts in Wyoming portion of the Greater Yellowstone Ecosystem, 2020. Grizzly bears with "G" in front of their number were ear-marked but not fitted with a radio collar upon release, typically because they were too young to be collared. Because of the mapping scale, some locations are combined at one symbol. A complete list is provided in Table 6.

**Table 6. Summary of grizzly bear conflict management captures in Wyoming portion of the Greater Yellowstone Ecosystem, 2019. Grizzly bears identified with "N/A" were removed from the population without receiving an identification number.**

| Date | ID | Capture county | Relocation site | Release county | Reason for capture |
|---|---|---|---|---|---|
| 4/25/2020 | 984 | PARK | | | REMOVED FOR PREVIOUS CONFLICT HISTORY OF GARBAGE AND PET/LIVESTOCK FEED, AND SEVERAL FAILED ATTEMPTS TO HAZE AWAY FROM DEVELOPED AREAS |
| 4/29/2020 | 802 | TETON | | | REMOVED FOR NUMEROUS CONFLICTS INVOLVING GARBAGE, PET/LIVESTOCK FEED, PROPERTY DAMAGE AND ENTERING STRUCTURES |
| 5/5/2020 | 834 | PARK | | | REMOVED FOR KILLING CHICKENS AND DAMAGING THE COOP, FREQUENTING DEVELOPED AREAS AND REPEATED FAILED RELOCATION ATTEMPTS |
| 5/7/2020 | 987 | PARK | WIGGINS FORK | FREMONT | CAPTURED FOR PIG DEPREDATION AND PROPERTY DAMAGE |
| 5/9/2020 | N/A | PARK | | | REMOVED FOR FREQUENTING DEVELOPED AREAS AND CLOSE PROXIMITY TO THE CITY OF CODY |
| 5/17/2020 | 988 | PARK | CAMP CREEK | PARK | CAPTURED FOR FREQUENTING RANCH HOUSING AREA, FAILURE TO LEAVE AFTER SEVERAL HAZING ATTEMPTS |
| 5/22/2020 | 991 | PARK | FOX CREEK | PARK | NON-TARGET CAPTURE AT DEVELOPED SITE |
| 6/17/2020 | N/A | HOT SPRINGS | | | REMOVED FOR CATTLE DEPREDATIONS ON PRIVATE LANDS |
| 6/18/2020 | N/A | PARK | | | REMOVED FOR VERY BOLD AND AGGRESSIVE BEHAVIOR TOWARDS PEOPLE |
| 7/1/2020 | 1001 | SUBLETTE | GRASSY LAKE | TETON | CAPTURED FOR CATTLE DEPREDATION |
| 7/3/2020 | 936 | SUBLETTE | | | REMOVED FOR REPEATED LIVESTOCK CONFLICTS AND DEPREDATIONS |
| 7/22/2020 | 1002 | SUBLETTE | MORMON CREEK | PARK | CAPTURED FOR CATTLE DEPREDATIONS |
| 7/28/2020 | 1006 | TETON | FIVE MILE CREEK | PARK | CAPTURED FOR REPEATED NUISANCE BEHAVIOR IN SUBDIVISION AND FOOD REWARDS (GRAIN IN SCAT) |
| 7/30/2020 | 168 | SUBLETTE | | | REMOVED FOR REPEATED CATTLE DEPREDATIONS AND EXTREMELY POOR CONDITION |
| 8/2/2020 | N/A | PARK | | | REMOVED FOR HABITUATED BEHAVIOR AND CONFLICTS INVOLVING BEEHIVES, BIRDFEEDERS, AND APPLE TREES |
| 8/7/2020 | 1006 | PARK | | | REMOVED FOR MULTIPLE FOOD REWARDS, AGGRESSIVE BEHAVIOR, AND FAILED RECENT RELOCATION |
| 8/29/2020 | N/A | PARK | | | REMOVED FOR REPEATED CATTLE DEPREDATIONS |
| 8/30/2020 | N/A | PARK | | | REMOVED FOR CATTLE DEPREDATIONS |
| 9/1/2020 | N/A | HOT SPRINGS | | | REMOVED FOR SHEEP DEPREDATIONS |
| 9/2/2020 | 499 | FREMONT | FIVE MILE | PARK | CAPTURED FOR CATTLE DEPREDATIONS |
| 9/2/2020 | G271 | FREMONT | FIVE MILE | PARK | CAPTURED WITH MOTHER (499) FOR CATTLE DEPREDATIONS |

**Table 6. Continued**

| Date | ID | Capture County | Relocation Site | Release County | Reason for Capture |
|---|---|---|---|---|---|
| 9/22/2020 | 1017 | PARK | SQUIRREL MEADOWS | TETON | CAPTURED FOR FREQUENTING YARDS AND RESIDENTIAL AREAS WITH FRUIT TREES, FREQUENTING AREAS AROUND BUFFALO BILL STATE PARK |
| 9/24/2020 | N/A | PARK | | | REMOVED FOR MULTIPLE CONFLICTS INVOLVING GARBAGE, BIRDFEEDERS, AND LIVESTOCK FEED |
| 9/29/2020 | N/A | PARK | | | REMOVED FOR MULTIPLE FOOD REWARDS INCLUDING GARBAGE AND AGGRESSIVE BEHAVIOR TOWARDS PEOPLE |
| 9/29/2020 | N/A | SUBLETTE | | | REMOVED FOR REPEATED CATTLE DEPREDATIONS |
| 10/19/2020 | N/A | FREMONT | | | REMOVED FOR HABITUATED BEHAVIOR, PROPERTY DAMAGE, AND HUMAN SAFETY (NEAR SUBDIVISION, TOWN AND SCHOOL) |
| 11/4/2020 | N/A | PARK | | | REMOVED FOR MULTIPLE FOOD REWARDS, FREQUENTING RANCH, AND PROPERTY DAMAGE |

*Starting the skinning process during a large carnivore conflict investigation*

## CONFLICT MANAGEMENT – CONFLICT VERIFICATION AND REPORTING

WGFD personnel investigated and recorded 208 human-grizzly bear conflicts in 2020 (Table 7, Figure 10). As a result of vigilant education and conflict prevention efforts, the general pattern of conflicts is relatively steady within currently occupied habitat (Figures 10 and 11). However, as occupied grizzly bear range has expanded, conflicts continue to occur in areas farther from the Recovery Zone and outside the DMA, often on private lands. Bears are increasingly coming into conflict with people in areas where grizzly bears have not been present in recent history..

Although the joint efforts of the WGFD, U.S. Forest Service, non-governmental organizations, and particularly the public, have resulted in reducing conflicts through education and attractant storage in many areas, the distribution of grizzly bear conflicts in Wyoming continues to expand with the population. Bears frequent lower elevations and developed areas regularly during the non-denning period. Grizzly bear-cattle depredation was the most frequent type of conflict documented in 2020. The annual variation in livestock depredation incidents is not easily explained. Although most human-bear conflicts are correlated with natural food abundance, the number of cattle and sheep killed annually do not follow the same pattern. As grizzly bears expand farther into human-dominated landscapes outside the DMA, the potential for conflict between bears and humans increases, resulting in negative outcomes for both grizzly bears and people. The WGFD continues to explore and use multiple options to reduce grizzly bear-livestock conflicts and expand our education and outreach efforts (see Bear Wise Wyoming Report, Page 28).

Half of the grizzly bear conflicts in Wyoming occurred on private lands and the majority were outside of Recovery Zone (Figures 11 and 12). The increasing distribution of grizzly bears is reflected in the annual documentation of conflicts farther from suitable habitat and continued expansion outside the DMA. As bears expand and occupy habitats commonly used by humans, there is a greater potential for conflicts to occur. Education and conflict-prevention efforts are used anywhere bears and people coexist, and management actions will be a function of human values and effects on the grizzly bear population in those areas.

*Grizzly Bear 399 re-enters Grand Teton National Park after creating an international spectacle cruising subdivisions and residential areas with four offspring in fall of 2020*

**Table 7. Type and number of human-grizzly bear conflicts in Wyoming portion of the Greater Yellowstone Ecosystem, 2020.**

| Conflict Type | Number | Percent (%) |
|---|---|---|
| Cattle | 127 | 61 |
| Pet/ Livestock/Birdfeed | 21 | 10 |
| Garbage | 12 | 6 |
| Aggression towards humans | 12 | 6 |
| Other | 9 | 4 |
| Property damage | 8 | 4 |
| Animal death | 4 | 2 |
| Beehive | 4 | 2 |
| Animal injury | 3 | 1 |
| Poultry | 3 | 1 |
| Sheep | 2 | <1 |
| Unsecured attractants | 2 | <1 |
| Swine | 1 | <1 |
| Total | 208 | 100 |

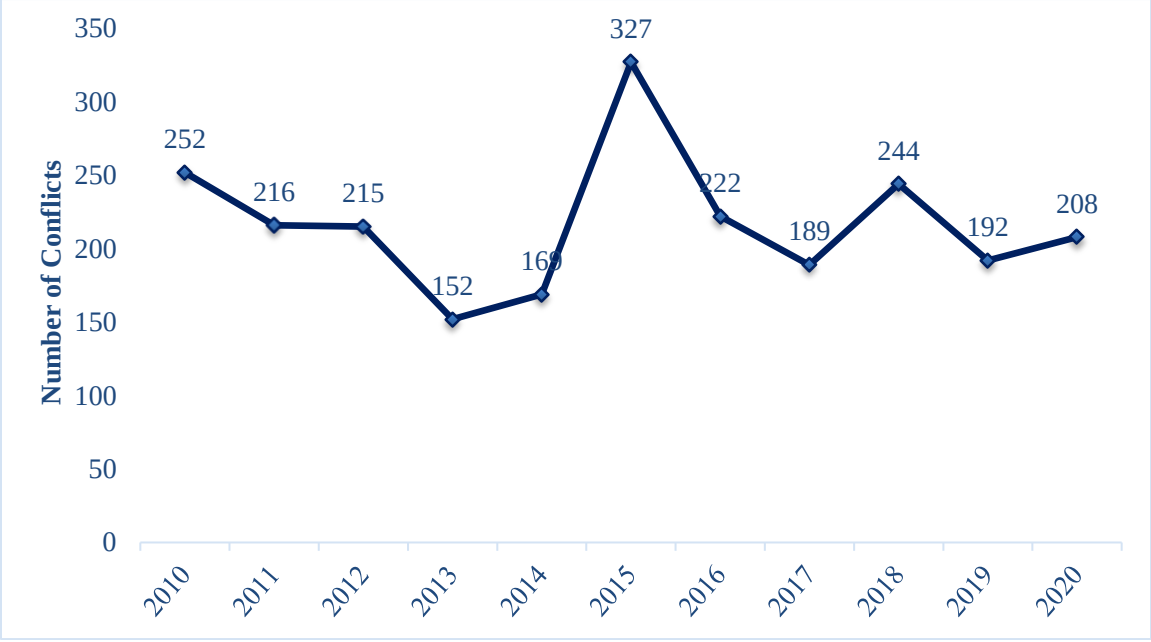



**Figure 10.** Number of human-grizzly bear conflicts and associated trendline in Wyoming portion of the Greater Yellowstone Ecosystem, 2010–2020.

Long-term trends in the number of conflicts is likely a result of grizzly bears increasing in numbers and distribution and expanding into areas used by humans, including livestock production, on public and private lands. There is also growing potential for roadside bear problems. Unfortunately, some people engage in unethical wildlife viewing practices, often resulting in habituated or food conditioned grizzly bears. These situations will continue to spark difficult challenges for grizzly bear managers in the future. As the GYE grizzly bear population continues to grow and expand into less suitable habitat, bears are more likely to encounter food sources such as garbage, pet food, livestock and livestock feed, and myriad other attractants, resulting in increased property damage and threats to human safety. Conflict prevention measures such as attractant storage, deterrence, and education are a priority for the Department. With that said, conflict management is often reactive. In general, there is an inverse relationship between social tolerance and biological suitability for bear occupancy in areas further from the Recovery Zone/Primary Conservation Area due to development, land use patterns, and various forms of recreation. Although prevention is the preferred option to reduce conflicts, each situation is managed on a case-by-case basis with education, securing of attractants, relocation or removal of individual bears, or a combination of methods applicable for long-term conflict resolution and conservation of grizzly bears.

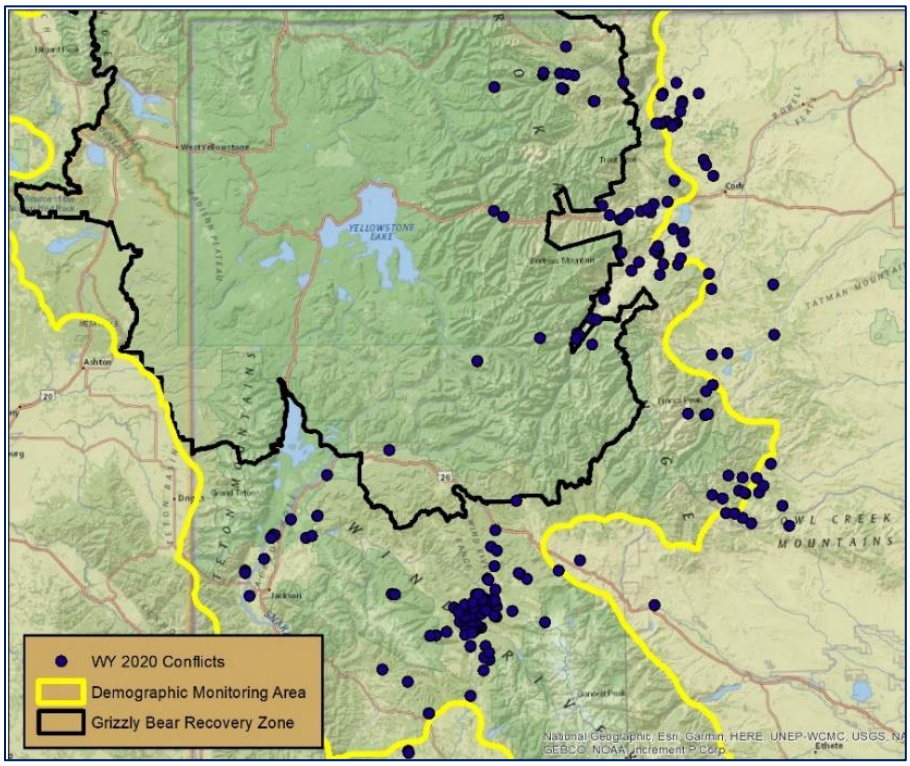



**Figure 11.** Location of human-grizzly bear conflicts in Wyoming portion of the Greater Yellowstone Ecosystem outside of National Parks ($n$ = 194) in relation to the Grizzly Bear Recovery Zone/Primary Conservation Area and the Demographic Monitoring Area, 2019.

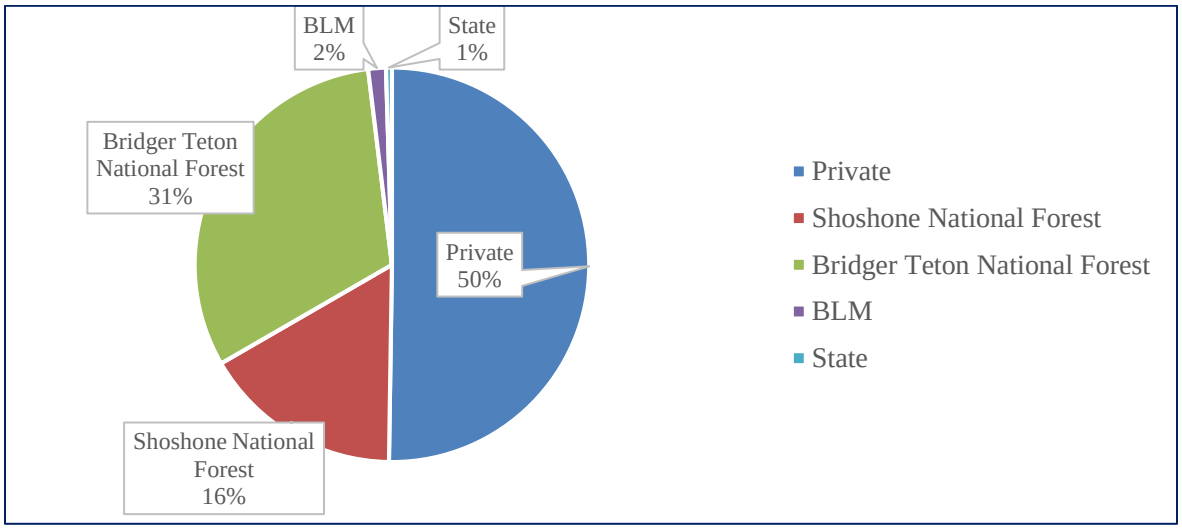



**Figure 12.** Percent of human-grizzly bear conflicts broken down by jurisdiction in the Wyoming portion of the Greater Yellowstone Ecosystem, 2020.

## 2020 Wyoming Bear Wise Wyoming Project Update

Introduction

The Bear Wise Community Program is a proactive initiative that seeks to minimize human-bear (black and grizzly) conflicts, minimize management-related bear mortalities associated with preventable conflicts, and to safeguard human communities in northwest Wyoming. The overall objective of Bear Wise is to promote individual and community ownership of ever-increasing human-bear conflict issues, moving toward creating a social conscience regarding responsible attractant management and behavior in bear habitat. This project seeks to raise awareness and proactively influence local waste management infrastructures with the specific intent of preventing conflicts from recurring. Strategies used to meet the campaign's objectives are: 1) minimize accessibility of unnatural attractants to bears in developed areas; 2) employ a public outreach and education campaign to reduce knowledge gaps about bears and the causes of conflicts; and 3) employ a bear resistant waste management system and promote bear-resistant waste management infrastructure.

This report provides a summary of program accomplishments in 2020. Past accomplishments are reported in the 2006 - 2019 annual reports of the Interagency Grizzly Bear Study Team and in the 2011-2019 Annual Job Completion Reports of the Wyoming Game and Fish Department.

Background

In 2004, a subcommittee of the IGBST conducted an analysis of causes and spatial distribution of grizzly bear mortalities and conflicts in the Greater Yellowstone Area (GYA) for the period of 1994–2003. The analysis identified that the majority of known, human-caused grizzly bear mortalities occurred due to agency management actions in response to conflicts (34%), self-defense killings, primarily by big game hunters (20%), and vandal killings (11%). The report made 33 recommendations to reduce human-grizzly bear conflicts and mortalities with focus on 3 actions that could be positively influenced by agency resources and personnel: 1) reduce conflicts at developed sites; 2) reduce self-defense killings; and 3) reduce vandal killings.

To address action number one, the committee recommended that a demonstration area be established to focus proactive, innovative, and enhanced management strategies where developed site conflicts and agency management actions resulting in relocation or removal of grizzly bears had historically been high. Spatial examination of conflicts identified the Wapiti area in northwest Wyoming as having one of the highest concentrations of black bear and grizzly bear conflicts in the GYE. The North Fork of the Shoshone River west of Cody was then chosen as the first area composed primarily of private land to have a multi-agency/public approach to reducing conflicts at developed sites.

In 2005, the Department began implementation of the Bear Wise Community Program. Although the program's efforts were focused primarily in the Wapiti area, the Department initiated a smaller scale project in Teton County to address the increasing number of black and grizzly bear conflicts in the Jackson, Wyoming area. For the last 16 years, the Bear Wise Community Programs in Northwest Wyoming have deployed a multi-faceted education and outreach

campaign in an effort to minimize human-bear conflicts and promote proper attractant management. Although a wide array of challenges remain and vary between communities, many accomplishments have been made and progress is expected to continue as Bear Wise efforts gain momentum. In an effort to broaden the scope of the program, this work was rebranded as the Bear Wise Wyoming Program.

Cody Project Update

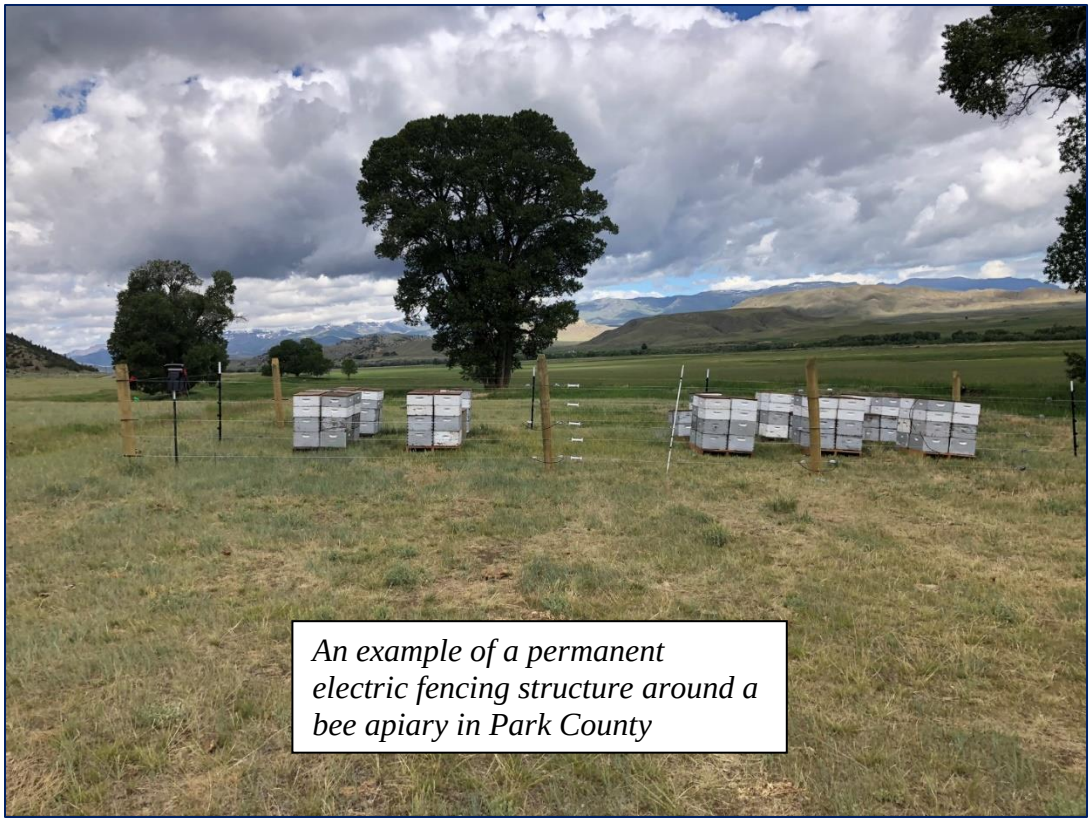
The Cody Bear Wise Community Program continues to utilize radio, television and print media, mass mailings, and the use of signing on private and public land to convey the educational messages surrounding human-bear conflict prevention. Conflict prevention information is also disseminated through public workshops and presentations and by contact with local community groups, governments, the public school system, and various youth organizations. To compliment educational initiatives, the program uses an extensive outreach campaign that assists the community in obtaining and utilizing bear-resistant products and implementing other practical methods of attractant management. Ongoing efforts and new accomplishments for 2020 are as follows:

- The Carcass Management Program continues to provide a domestic livestock carcass removal service for livestock producers located in occupied grizzly bear habitat within Park County, Wyoming. The program has been traditionally funded by the Park County Predator Management District and Wyoming Animal Damage Management Board. In addition to those donors, the program received contributions from Bureau of Land Management, National Fish and Wildlife Foundation. The program provides livestock producers and owners with an alternative to the use of on-site carcass dumps, which are a significant bear attractant and indirectly contribute to numerous human-bear conflicts. Since June 2008, 1,376 domestic livestock carcasses have been removed from private lands.

- Recommendations concerning the proper storage of garbage and other attractants are provided to the Park County Planning and Zoning Commission for new developments within the greater Cody area. The Coordinator reviews proposed developments on a case-by-case basis, attends monthly meetings, and contacts applicants directly to discuss conflict prevention measures. To date, these comments have been adopted as either formal recommendations or as a condition of approval for 25 new developments within Park County.

- A public service announcement (PSA) was recorded by WGFD personnel on “Staying Safe in Bear Country” and broadcast over the radio in the spring of 2020 on the Bighorn Basin Radio Network. LCS personnel also took part of several radio interviews.

- In the Cody Region, we built 10 permanent electric fences around bee apiaries that have been in the same place long term. These project were completed in cooperation with USDA Wildlife Service’s non-lethal specialist and funding to do livestock conflict prevention.



*An example of a permanent electric fencing structure around a bee apiary in Park County*

- Large Carnivore personnel along with USDA Wildlife Service's non-lethal specialist also built a permanent electric fence around a landowner's chickens and goats. The landowner's small livestock were in a high density grizzly bear area adjacent to a regularly used corridor.

- The carcass management program received grant funding from the National Fish and Wildlife Foundation. This funding is from restitution of federal wildlife violations and will be used to reduce human-bear conflicts.

- Three (3) collapsible bear boxes were placed at backcountry campsites in the Beartooth Mountains. These bear boxes will be used by many outdoor recreationalists who travel from all over the country and world to utilize the Beartooth Mountains. Although, there are food storage regulations on these Forest Service lands the backcountry campsites lack infrastructure for campers.

*Members of the U.S. Forest Service and Wyoming Game and Fish with a bear box placed in the Beartooth Mountains.*

- In the spring of 2020, LCS personnel put on two "Living in Large Carnivore Country" workshops in Story and Sheridan, Wyoming. The objective of these workshops is to reach out to the public and give them the opportunity to learn how to live with bears, mountain lions, and wolves.

- Numerous informational presentations were given that focused on human-bear conflict prevention to students at the following schools Powell High School, Cody Elementary Schools, Basin Middle School, and Northwest College. Some of these presentations were given by zoom due to COVID-19 concerns.

- A booth containing information on bear identification, attractant storage, hunting and recreating safely in bear country, and the proper use of bear spray was staffed at the Lander Winter Fair.


*Creative Solutions – LCS personnel continue the bearspray giveaway in Cody while complying with Covid restrictions in the name of public safety.*

- 100 canisters of bear spray were purchased with funding from the Rocky Mountain Elk Foundation, Western Bear Foundation, and Wyoming Outdoorsman. The cans of bear spray were given free of charge to hunters and anglers in early in September.

- A "Working Safely in Bear Country" workshop was conducted for the Park County Weed and Pest District, Park County Wilderness EMT's, and Rocky Mountain Power employees.

- A permanent electric fence was erected in 2018 at the Park County Landfill. To ensure the fence is in good working order WGFD personal spent several days repairing and maintain the fence in 2020.

- The 2020 Antelope, Deer, and Elk hunting regulations have a section on being *Bear Aware*. Specifically there is information regarding game retrieval and handling, how to react to an aggressive/defensive bear encounter, how to properly use bear spray, and what to do if a bear comes into camp.

Pinedale Area Update

In 2011, a Bear Wise Community effort was initiated targeting residential areas north of Pinedale, Wyoming where the occurrence of human-bear conflict has increased in recent years. Accomplishments for the Pinedale area in 2020 are as follows:

- Hunting in Bear Country presentations were given to hunter safety classes throughout the region in an effort to educate future sportsmen and women and increase safety potential.

- LCS personnel provided range rider safety training to local cowboys and ranches that have a high potential of encounters with grizzly bears and livestock.

- Bear safety presentations were given to the Sublette County Weed and Pest employees and volunteers. These personnel have the potential to encounter grizzly bears during the course of their work activities.

- LCS personnel provided training for Regional fisheries crews and local Sublette County Conservation District employees.

Objectives for 2021 include continued expansion of the program into the other areas of the state where human-bear conflicts continue to be a chronic issue and the continuation of current educational and outreach efforts in the Cody area with specific focus on areas that have not adopted proper attractant management methods.

The Wapiti and Pinedale area Bear Wise Community programs face the ongoing challenges of: 1) the absence of ordinances, regulations, or laws prohibiting the feeding of bears; 2) limited educational opportunities and contact with portions of the community due to a large number of summer-only residents and the lack of organized community groups and; 3) decreased public tolerance for grizzly bears due to record numbers of human-bear conflicts and continued federal legal protection. The future success of the Bear Wise program lies in continued community interest and individual participation in proper attractant management.

Jackson Hole Project Update

The Bear Wise Jackson Hole program continues educational and outreach initiatives in an effort to minimize human-bear conflicts within the community of Jackson and surrounding areas. In 2020, the program's public outreach and educational efforts included the use of signage, public workshops and presentations, distribution of informational pamphlets, promoting awareness about bear spray, carcass and fruit tree management, and utilizing our bear education trailer.

- A bear education trailer was purchased in August 2010 with funding contributions from the Department, Grand Teton National Park, Bridger Teton National Forest and Jackson Hole Wildlife Foundation. Two bear mounts (one grizzly bear and one black bear) have been placed in the trailer along with other educational materials. The bear mounts were donated to the Department through a partnership with the United States Taxidermist Association and the Center for Wildlife Information. The trailer was displayed and staffed at various events and locations including Teton National Park, Jackson Elk Fest, Fourth of July Parade and the National Elk Refuge Visitor Center.

- Public service announcements were broadcast on four local radio stations in Jackson for a total of six weeks throughout the spring, summer, and fall of 2020. The announcements focused on storing attractants so they are unavailable to bears and hunting safely in bear country.

- Numerous educational talks were presented to various groups including homeowner's associations, guest ranches, youth camps, Jackson residents, tourists, school groups and Government employees.

- Door flyers with detailed information about attractant storage and bear conflict avoidance were distributed in Teton County residential areas where high levels of bear/human conflicts were occurring.

- A considerable amount of time was spent removing ungulate and livestock carcasses from residential areas and ranches in the Jackson Region.

- LCS personnel continued to work with a Jackson catering company, Roots Kitchen & Cannery. They have been involved in picking apples from trees that have been identified as a source of bear conflict by WGFD. In 2020, they harvested fruit from 161 trees removing 13,000 lbs. of apples which was made into cider.

- Numerous personal contacts were made with private residents in Teton County. This has proven to be a useful way to establish working relationships with residents and maintain an exchange of information about bear activity in the area.

- A booth containing information on bear identification, attractant storage, hunting and recreating safely in bear country, and the proper use of bear spray was staffed at the Jackson Hole Antler Auction.

- LCS personnel assisted hunting outfitters and with the installation and maintenance of electric fence systems around their field camps located in the Bridger-Teton National Forest. Annually personnel meet with hunters and outfitters to reduce to conflict potential between humans and grizzly bears.

- LCS biologists assisted Teton County Transfer Station staff with an electric fence design for their new facility in order to be proactive and reduce conflict potential for black and grizzly bears.

- Signage detailing information on hunting safely in bear country, bear identification, recent bear activity, and proper attractant storage were placed at USFS trailheads and in private residential areas throughout Teton County.

- Consultations were conducted at multiple businesses and residences where recommendations were made regarding sanitation infrastructure and compliance with the Bear Conflict Mitigation and Prevention Lander Development Recommendations (LDR).

- Bear Aware educational materials were distributed to school groups, campground hosts, hunters, and numerous residents in Teton County.

- Several radio and newspaper interviews were conducted regarding conflict prevention in the Jackson area.

- Educational black bear/grizzly bear identification materials were distributed to black bear hunters who registered bait sites with the Wyoming Game and Fish Department in the Jackson region.

- LCS personnel worked with a Jackson sanitation company and East Jackson residents on placing new bear resistant garbage cans in several East Jackson neighborhoods.

- LCS biologists provided bear safety information including bear spray demonstrations with the "bear charger" at the Fire in the Mountains music festival in the Buffalo Valley. Several hundred attendees joined the wokshops and donations were made by the festival to procure an install a bear proof food storage box during the summer of 2020..

Objectives for the Bear Wise Jackson Hole program in 2021 will be focused on supporting Teton County and local waste management companies with projects that will help disseminate information and achieve compliance with the recently adopted Teton County Bear Conflict Mitigation and Prevention LDR. In addition, more work will be done to identify areas within the city limits of Jackson and Star Valley communities where better attractant management and sanitation infrastructure is needed.

The recent implementation of the Teton County Bear Conflict Mitigation and Prevention LDR has greatly reduced the amount of available attractants on the landscape and is a tremendous step forward for the Bear Wise Jackson Hole program. The new challenges faced by the Department will be achieving full compliance with this regulation, even in years with low conflict when it may appear that the conflict issues are resolved. The Bear Wise Jackson Hole Program will convey the importance of compliance and strive to maintain public support for the LDR through public outreach and education projects. In order for the Jackson program to be successful, the program must continually identify information and education needs within the community while being adaptive to changing situations across different geographic areas. This will require the Department to coordinate with other government agencies and local non-government organizations working across multiple jurisdictions to develop a uniform and consistent message. If this level of coordination is achieved, the Department will be more effective in gaining support and building enthusiasm for Bear Wise Jackson Hole, directing resources to priority areas, and reaching all demographics.

*LCS personnel take advantage of any chance to talk to our future generations about bear ecology and safety when recreating in grizzly bear country.*

**Information and Education**

**2020 Accomplishments**

- Electronic and Print Media

    - As per Wyoming Statute, grizzly bear relocation from one county to another must be announced through local media and to the local sheriff of the county into which the bear was relocated. Each announcement is posted in a timely fashion to the Department's website. In 2020, 9 notifications were distributed and posted on the website.

    - Personnel issued multiple educational news releases throughout the season informing readers and listeners of bear safety, behavior, conflict avoidance, food storage and natural food availability. Personnel worked closely with the staff at *Wyoming Wildlife* magazine on the award winning issue devoted to grizzly bears, December 2020.

    - The Bear Wise program and Large Carnivore Section personnel worked closely with the Wyoming Outfitters and Guides Association (WYOGA) to create a video outlining safety when hunting in grizzly bear country.

- Grizzly Bear Management Web Page

    - The grizzly bear management web page continues to be maintained and updated on a regular basis in order to provide timely information to the public regarding grizzly bear management activities conducted by the department. The web page contents include various interagency annual reports and updates and links to other grizzly bear recovery websites.

- Hunter Education

    - Every hunter education class in Wyoming is required to discuss how to hunt safely in bear country. To assist instructors, we have provided inert bear spray canisters for demonstration purposes and DVDs entitled "Staying Safe in Bear Country, A Behavioral Based Approach to Reducing Risk." A section on bear safety is included in the student manual.

Publications

The primary link to other publications, annual reports, and peer reviewed literature for the Yellowstone population of grizzly bears is summarized on the United States Geological Service web site at file:///C:/Users/dajthomps/Downloads/IGBST%20Publication%20List%201974-2020%20v2.pdf.

For information specific to the Wyoming Game and Fish Department's grizzly bear management program; including links to publications, reports, updates, and plan visit: https://wgfd.wyo.gov/web2011/wildlife-1000674.aspx

**EXPENDITURES FOR GRIZZLY BEAR MANAGEMENT BY THE DEPARTMENT – FISCAL YEAR 2021**

The Department's 2021 fiscal year (FY) occurred from July 1, 2020 – June 30, 2021. During the course of FY 21, the Department conducted annual population monitoring, responsive conflict management, Bear Wise Wyoming programs, and other statutory and regulatory obligations in regards to damage compensation and law enforcement for grizzly bears. During FY 21, the Department directed $1,326,113 of funds toward grizzly bear conservation and management. Program expenditures are reported by primary work activities conducted during FY 21. The figures reported below do not represent all Department expenses incurred during this FY:

- Conflict Prevention: $273,645.11*
- Annual Monitoring (Population and Habitat Evaluations): $405,285.09
- Additional Information and Education including Bear Wise Wyoming: $127,986.72*
- Season Setting and Regulations: $5,158.94
- Law Enforcement and Investigations: $47,541.43
- Management Planning and Reporting: $9,577.94
- Damage Compensation for Verified Loss: $253,808.46

**Proactive Bear Wise Wyoming activities are represented both in "conflict prevention" and "additional information and education" categories.*

In addition to the direct expenditures, a total of $1,660,400 was allocated to grizzly bear management during FY 21 through shared expenditures and overlapping activities including overhead that involve grizzly bears, other Wyoming wildlife, and Departmental responsibilities.